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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ERIC ADLER, JAMES S. DUNN,
JOSEPH IADANZA, and JENIFER E. LARY

Appeal 2010-002863
Application 10/697,012
Technology Center 2800

Before JOHN A. JEFFERY, JEFFREY S. SMITH, and JENNIFER S. BISK, *Administrative Patent Judges*.

BISK, *Administrative Patent Judge*.

DECISION ON APPEAL

SUMMARY

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 20-27. Claims 1-19 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

Claims 20-27 stand rejected under 35 U.S.C §102(b) as being anticipated by Nakagawa (US 5,241,210; Aug. 31, 1993).

Claims 20-27 also stand rejected under 35 U.S.C §102(e) as being anticipated by Yamaguchi (US 6,118,152; Sep. 12, 2000 (filed Oct. 28, 1998)).

We affirm.

STATEMENT OF THE CASE

Appellants' invention relates to a method for making a semiconductor device having an electrically modulated conduction channel. Representative claim 20, reproduced below with key disputed language emphasized, is illustrative of the claimed subject matter:

> 20. A method for making a semiconductor chip comprising:
>
> forming a diffusion region in a semiconductor substrate;
>
> forming an insulated trench structure in said substrate which surrounds said diffusion region; and
>
> *forming electrical connections on said trench structure and said substrate which receive a control voltage whereby an electric field is produced to control a current flowing in said diffusion region.*

The Examiner finds that both Nakagawa and Yamaguchi explicitly disclose every limitation of representative claim 20 except "an electric field is produced to control a current flowing in said diffusion region." Ans. 3-4.

The Examiner finds that this limitation is inherent in both references and cites to Conner (US 3,813,586; May 28, 1974) as evidence to support this finding. Final Rejection 3; Ans. 4.

Appellants argue that the cited references do not anticipate claim 20. App. Br. 6-10; Reply Br. 3-6. First, Appellants assert that the position of the trench structure in both references teaches away from the claimed invention because it would interfere with the formation of the electric field. App. Br. 8. Second, Appellants argue that the references do not disclose, explicitly or inherently, a device with both a trench structure and a substrate that receive a control voltage and create an electric field to control a current flowing in said diffusion region as required by the claim. App. Br. 8. Third, Appellants argue that Conner does not support the Examiner's finding of inherency. Reply Br. 5-6.

ISSUE

Under § 102, has the Examiner erred in finding that both Nakagawa and Yamaguchi necessarily disclose that "an electric field is produced to control a current flowing in said diffusion region"?

ANALYSIS

As described above, the Examiner finds that Nakagawa "does not explicitly state that an electric field is produced." Ans. 5. Instead, the Examiner finds that "[i]t is inherent, to one of ordinary skill in the semiconductor device art, that when an applied potential, voltage or current, across a contact in a particular diffusion region; a field is applied at that region which will increase or decrease the resistance across that region."

Ans. 3-4. The Examiner cites Conner (US 3,813,586; May 28, 1974) as supporting this assertion. Ans. 4 (citing Conner, col. 4, ll. 7-10 ("When the gate potential is varied, the electric field is varied which modulates the channel resistance, producing the field effect transistor action in the well known manner.")). All of Appellants' arguments boil down to disputing this finding by the Examiner. App. Br. 7-8; Reply Br. 4.

We are not persuaded by Appellants' arguments. First, Appellants' argument that Nakagawa teaches away from the claimed invention is irrelevant to an anticipation rejection. *Celeritas Techs. v. Rockwell Int'l*, 150 F.3d 1354, 1361 (Fed. Cir. 1998) ("[T]he question whether a reference 'teaches away' from the invention is inapplicable to an anticipation analysis.").

Second, we agree with the Examiner that applying a control voltage to the device in Nakagawa will necessarily create an electric field. And the Examiner further finds that this electric field would necessarily create a current in the diffusion region. Ans. 5. Thus, the Examiner has presented a prima facie case of unpatentability. *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011) (holding that the PTO satisfies the initial burden of showing a prima facie case of anticipation unless the rejection "is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection.").

Therefore, the burden shifts to the Appellants to prove that Nakagawa's device does not create a current in the diffusion region when a control voltage is applied. *See In re King*, 801 F.2d 1324, 1327 (Fed. Cir. 1986) ("[A]fter the PTO establishes a prima facie case of anticipation based on inherency, the burden shifts to appellant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.")

(internal quotation marks omitted). Appellants have not satisfied this burden. Appellants provide no evidence to support their assertion that because Nakagawa's disclosed device differs "in structure and operation" from the claimed invention, an applied voltage would not create an electric field in the device's diffusion region. Reply Br. 4. Moreover, Appellants' argument that Conner is not a proper reference to support the Examiner's finding of inherency is not enough to show that Nakagawa does not work as found by the Examiner.

For these reasons, we sustain the Examiner's rejection of claims 20-27 as anticipated by Nakagawa. Since this conclusion is dispositive, we need not reach the Examiner's cumulative rejection that claims 20-27 are anticipated by Yamaguchi.

DECISION

The Examiner's decision rejecting claims 20-27 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

rwk